WHAT IS CLAIMED IS:

1. An apparatus for performing on-site automatic nondestructive materials analysis on a subject using Raman spectroscopy comprising:

a Raman scanner including:

one or more laser light sources to illuminate the subject,

a charge coupled device camera to capture emitted radiation from the subject, and

an optical path to direct the emitted radiation from the subject to the charge coupled device camera;

a database to store a plurality of spectral fingerprints of known samples; and

a processor coupled to the scanner to compare a spectral signature in the emitted radiation from the subject to the plurality of spectral fingerprints of known samples in the database.

2. The apparatus according to claim 1, wherein said processor generates a "positive/negative" or a "best match" response and forwards a result to an operator.

3. The apparatus according to claim 1, further comprising an optical sensor coupled to the processor to detect a presence or absence of the subject.

4. The apparatus according to claim 3, further comprising a memory, wherein upon said optical sensor automatically sensing removal of the subject, said processor saves a spectral signature from the subject in the memory and resets for a next subject.

5. The apparatus according to claim 1, further comprising one or more optical probes for scanning a particular subject that does not conform to a scanning surface.

6. The apparatus according to claim 1, further comprising computer readable media having encoded thereon instructions that cause the processor to automate capture and correlation of a Raman signature of the subject to spectra in the database and determine a best match or matches within a predetermined confidence level, wherein if no matches are found within the predetermined confidence level a "No Match Found" response will be generated and forwarded to the operator.

7. The apparatus according to claim 1, further comprising computer readable media having stored thereon spectral correlation software to enable the processor to provide on site automated material identification.

8. The apparatus according to claim 1, further comprising computer readable media having stored thereon spectral correlation software to enable the processor to provide on site documentation authenticity verification.

9. The apparatus scanner according to claim 1, further comprising computer readable media having stored thereon spectral correlation software to enable the processor to provide capability to automatically trace a material to its origin using a database of known Raman signatures.

10. The apparatus scanner according to claim 1, further comprising moveable optics controlled by the processor to provide materials analysis of more than one point along the subject without physically moving the subject.

11. The apparatus according to claim 1, wherein said processor automatically generates Raman spectra of one or more points on the subject and correlates them to spectra in the database of known materials.

12. The apparatus according to claim 1, further comprising a communications device to transmit one or more results.

13. The apparatus according to claim 1, wherein the scanner includes a scanning surface and one or more optical probes having conjugated optics to enable scanning of a subject that does not conform to the scanner surface.

14. The apparatus according to claim 1, wherein the scanner includes a scanning surface and one or more forms for accurate positioning of the subject on the scanner surface.

15. The apparatus according to claim 1, wherein the scanner includes an adaptor that conforms to a subject surface profile to insure that no ambient light contaminates a subject spectral signature.

16. The apparatus according to claim 1, further comprising computer readable media having stored thereon software to enable the processor to filter out erroneous spectral features in a sample signature.

17. A method for analyzing a subject comprising:

scanning the subject with a Raman scanner;

detecting an emitted radiation from the subject;

determining a spectral signature of the emitted radiation from the subject; and

comparing the spectral signature of the emitted radiation from the subject against one or more samples to determine if the spectral signature of the emitted radiation matches one of the one or more samples.

18. The method according to claim 17, further comprising generating a "positive/negative" or a "best match" response and forwarding a result to an operator.

19. The method according to claim 17, further comprising detecting a presence of the subject and automatically initiating said scanning upon detecting the presence of the subject.

20. The method according to claim 17, further comprising detecting removal of the subject and automatically saving the spectral signature in memory and resetting for a next subject.

21. The method according to claim 17, wherein said scanning includes scanning one or more points on the subject without physically repositioning the subject.

22. The method according to claim 17, wherein said scanning includes using one or more optical probes for scanning a particular subject that does not conform to a scanning surface.

23. The method according to claim 17, wherein said comparing includes correlating a Raman signature of the subject to spectra in a database and determining one or more best matches within a predetermined confidence level, if no matches are found within the predetermined confidence level generating a "No Match Found" response, and forwarding the one or more best matches or the "No Match Found" response to the operator.

24. The method according to claim 17, further comprising providing on site automated material identification.

25. The method according to claim 17, further comprising providing on site documentation authenticity verification.

26. The method according to claim 17, further comprising providing capability to automatically trace a material to its origin using a database of known Raman signatures.

27. A method for analyzing a subject comprising:

automatically generating a Raman spectra of one or more points on the subject; and

comparing the spectral signature of the emitted radiation from the subject against one or more samples to determine if the spectral signature of the emitted radiation matches one of the one or more samples.

28. The method according to claim 27, further comprising transmitting the spectral signature over a communications link for analysis.

29. The method according to claim 27, further comprising using one or more forms to accurately position the subject on a scanner surface.

30. The method according to claim 27, further comprising placing an adaptor on the subject that conforms to the subject surface profile to ensure that no ambient light contaminates a subject spectral signature.

31. The method according to claim 27, further comprising filtering out erroneous spectral features in a sample signature.